

Client interview

September 6, 2018

2:30 PM Self-introduction

- Client: James Frenzel
- Mentor: Feng Li

2:35 PM Claim some requirements of the project.

- Discreet, non-obtrusive, low-cost, remote.
- Any type of video monitor device is forbidden.

2:50 PM Go through the team contract.

- Correction
 - Missing a requirement of “remote” in the objective.
 - Feng li is mentor, and James Frenzel is Client.
- Roles and Responsibilities
 - Liu is to oversee the project’s budget
 - Jeremy is to be the primary client contact
 - Han is to be in charge of organizing team meetings
- Documentation:
 - Carl is to be in charge of keeping the portfolio.
 - Everyone is to keep their own form of team meeting minutes. From here the team will combine them into one.
- Team Relationships
 - All members are to respect everyone’s ethnicity
 - All members are to reach out to one another for help as needed
 - All members are to only communicate in English during team events

3:00 PM Question and answer session

3:20 PM End of the meeting

September 13, 2018 9.13

2:35pm Meeting start and summary of last meeting

2:37pm Q & A Start

Some important items to note from the questions

- project is to be for a more general group
- tracking of the car is a good idea
- the project is for independent elderly
- budget is \$1000
- disguising devices would work
- microphones are fine
- record home power is useful
- stairs might be an area to investigate
- no defined test area yet
- Ethernet communication preferred
- send data to webpage would potentially
- battery operated devices

3:15pm Wrap up and meeting adjourned

Sept. 20th, 2018

2:30pm Start and Jeremy summarized what was discussed last meeting

2:33pm Liu discussed:

- Weighing sensor
- Automatic door sensor

Dr. J asked about devices:

- Size
- Power
- Connectivity
- Cost

2:37pm

Carl

- Temperature discussion
 - o Monitor health

Dr. J

- Mentions sleeping bag rating
- How many sensors?
- Smart blanket

Carl

- Another use is to inform of potential fire

Dr. J

- Would be nice
- Might be intrusive

2:42pm

Han

- Discusses power usage
- Monitor power

Dr. J

- Mom has a gas stove
- Monitor bathroom
 - o Light and hairdryer
- Kitchen light
- Smart light switch
 - o Google this, might exist
- Focus on a single outlet

Han

- Simple trigger

- Door left open
- Open vs. Closed

Dr. J

- Connectivity?

Han

- Light beam for car

Dr. J

- Ultrasound sensor instead?

2:50pm

Jeremy

- We could weigh for the car moving over the sensor
- Stair solutions
 - o Light vs. Weight

Dr. J

- Railing
- Set up

Jeremy

- How long should the batteries last?

Dr. J

- Quarterly would be good
- Battery pack, USB

3:00pm: Clarification and questions

Dr. J

- Date and put team name on documents please
- ZigBee might be useful
- Flat wire

Jeremy

- Webpage would be optimal

Dr. J

- Webpage creation simple, connecting to it not so much
- TCP messages, wire shark

Jeremy

- So far, any sensor ideas reach out to Dr. J?

Dr. J

- Weight is interesting

- Temperature might be difficult
- Microphone is skeptical
- Echo maybe

Jeremy

- Monitor fridge

Dr. J

- Should work
- New microcontroller

Li

- Budget draft next week
- \$70 for final poster board
- Group email: Engr-IOSenior@uidaho.edu

3:20pm Meeting adjourned

Sept. 27th, 2018

Meeting minutes 09/27/18

By Jeremy Perhac

Team: IO Senior

Attendees: Dr. Li, Dr. Frenzel, Han, Jeremy, Carl, Liu

2:35pm: Start

Han

- Review of last week's meeting

2:38pm: Fridge ideas

Han

- Door is open vs not

Dr. Li

- Fridge has a light

Han

- Freezer doesn't

Dr. J

- Conductive tape?
- Sealing issue

Han

- Yes, conductive tape

Dr. J

- Wires might cause issues

2:42pm: Ultrasonic

Jeremy

- May prove to be useful for different scenarios

Dr. J

- Range?

Jeremy

- Not sure yet
- Ultrasonic sensors are cheap
- Arduino Nano for potential controllers

2:48pm: Motion sensor

Liu

- Useful
- Affordable

Dr. J

- Range?

Liu

- Not sure

Jeremy

- Recently found, so we are still researching these

Han

- Range shouldn't be much of an issue

2:50pm: Power use

Han

- Some form of transformer for hair dryer

Dr. J

- How cumbersome to transfer between monitored objects?
- Think discrete, like the outlet itself

Han

- Outlet relay?

Dr. J

- Look for current flow

2:55pm: Other notes

Jeremy

- Found a testing place

Han

- Is there some "technique" for a wireless communication

Dr. J

- Been looking into this himself
- Some of these "techniques" are on the 443 handouts
- Arduino libraries have some issues
- No good debug
- Check Arduino for ZigBee compatibility

Jeremy

- Arduino more than likely has ZigBee compatibility

Han

- Talks about a picture he drew for potential device locations

Dr. J

- What about a pet?

Jeremy

- Load cells
- Budget in process, almost done

Dr. J

- Look into what comms Arduino supports

Dr. Li

- PRD due today

Dr. J

- Text message could be useful

Jeremy

- How critical on text?

Dr. J

- Query if mom is home
- Emergencies on text

3:20pm: Meeting adjourned

October. 4th, 2018

Meeting minutes 10/04/18

By Jeremy Perhac

Team: IOSenior

Attendees: Dr. Li, Dr. Frenzel, Han, Jeremy, Carl, Liu

1:30pm Start and batter

Jeremy

- Battery has 5000mAh

- First test was on roughly a 1/3 charge

- Lasted 160min

- Nucleo board

1:35pm Scheduling

Han

- Learn boards while testing

Jeremy

- Complete two items at once

Dr. J

- Motion, how do?

- DVP?

Jeremy

- Summarize finding on motion sensor

Dr. J

- Found some typo's in plan

- o Key days misunderstanding

- Snapshot days

- Communication start

Jeremy

- This semester sensors, next communications

1:52pm Snapshot

Han

- We have started working on it

- Jeremy and Carl on ultrasonic

- Han and Liu on current transformer

Dr. Li

- 9 slides minimum for snapshot

Dr. J

- Purchase current transformer?

Han

-Researching it

Dr. J

- Digikey for purchases

-New Ark

Jeremy

- Buy stuff?

-o Nanos specifically

Dr. J

- Budget proposal for purchases

Dr. Li

- Proposals: What you're doing, why you need it and how much it is

- Email who all needs to be addressed

Han

- Silicon labs

Dr. J

- Look for internet connectivity when looking into controllers

- Internet connection coding webinar on 442 handouts

Jeremy

- HMI is in person only

2:13pm Meeting "adjourned," Dr. Li leaves

Dr. J

- Looks at silicon labs and nucleo with everyone

- Diligent, multi wireless communication device

2:20pm Meeting fully adjourned

October. 11th, 2018

Meeting minutes Oct 11, 2018

By: Jeremy Perhac

Team: IOSenior

Attendee's: Dr. Frenzel, Dr. Li, Jeremy, Han, Carl, Liu

2:34pm Start

Han

- DVP questions?

- o Not sure what to do

Dr. Li

- No idea, it's new

- Don't worry about it, will email about what to do after the meeting.

Dr. J

- Might be about how to test the design

- o Simulation

- o Hit it with a hammer

- o Special tools necessary

- How well does it work?

Han

- Pitch competition

Dr. Li

- Optional

- You have several minutes to present your idea/project to entice them into "Sponsoring" in. AKA, free money to help with idea/project

- If you have interest, you should try it

Dr. J

- A group in the past started a company for lineman hardhat sensors off of this

2:40pm Sensor change and issues

Jeremy

- Another battery test, this time full battery

- Ultrasonic has some issues potentially use IR

- Some sort of check, CRC?

Dr. J

- Extrapolate this issue?

Jeremy

- Sensor triggers itself every now and then

Dr. J

- Potential reverb or the Arduino library
- Consider storing data that the Ultrasonic is outputting
- What do with IR sensor?

Jeremy

- IR sensor more than likely receive
 - o ie. Temp change when something comes across it

Dr. J

- Might not work, feel free to prove wrong

2:45pm Endowment Request

Han

- Rough draft of Endowment

Dr. J

- Be specified on the items
 - o Company
 - o Brand
- Explain why you need the number of items

2:50pm Other items

Dr. Li

- Logbook is due
- Logbook discussion

Jeremy

- When ever you are working on the project, you should be writing in your logbook

Dr. J

- Looking forward to more answers on the Ultrasonic issues and IR potential
- Leaves

Dr. Li

- No project is perfect, just present what you have but explain your worry/issues
- It's all about progress, not the product

3:00pm Meeting adjourned

October. 18th, 2018

Meeting minutes Oct 18, 2018

By: Jeremy Perhac

Team: IOSenior

Attendee's: Dr. Frenzel, Dr. Li, Jeremy, Han, Carl, Liu

2:35pm Start Purchase proposal draft

Han

- Presents the "final" draft

Dr. J

- Supplier
 - o Amazon, Digikey, sparkfun
- Couple words missing
- Conductive tape?
- Confusing sentence towards end

Han

- Delete the last couple of words

Dr. J

- Put where these prices are from
- IR is a possible alternative to Ultrasonic re-word
- Make those minor changes
 - o Gives physical changes to Han

Dr. Li

- Add on to the Project Objective
- Pitch?

Jeremy

- No

Dr. Li

- Looked for a similar system?
 - o No camera

Dr. J

- There are things, but still a little intrusive

2:45pm Sensor issues

Jeremy

- Ultrasonic has a vague wording on a 60ms measurement cycle on datasheet

- Tried:
 - o Waiting every 60ms to read
 - o Wait 60ms between send and receive
 - o Averaging over 60ms
- Went with averaging 5 readings with 60ms in between each read
- Works for car, not so much on pass bys
- o Steady state works, transient not so much

Dr. J

- Could you send me this datasheet

Jeremy

- Can do
 - o Pretty short
- Past battery tests are invalid due to "roll over"
- o Issue with values

Dr. J

- Remember bits

Jeremy

- Current test results
 - o Started 9:00pm 10/17/18
 - o End 12:17pm 10/18/18
 - o Expected: min = 917, 10's = 91, 100's = 9
 - o Results: min = 147, 10's = 91, 100's = 99
- Goes over why the results showed
- New test going currently
- Millis() function

Dr. J

- 24hr estimate should be fine
 - o IE: Let it run, and check every day

2:55pm Wikimaster

Han

- Wikimaster question's
- Can two people work on it

Dr. Li

- Yes, why?

Carl

- Feels like it might be too much for just him

Dr. Li

- It is not too hard, but you can do two masters

2:57pm DVP draft

Han

- Provides copy to Dr. Li and Dr. J
- o They read over it

Dr. J

- Tests all seem pass fail
- o May need to be a little more rigorous on this
- The current ones seem important
- To Dr. Li: Is this enough detail?

Dr. Li

- Should be based off the PRD
- The more detail the better
- Full system test could already be on here

3:03pm Other comments and concerns

Dr. Li

- Portfolio should be physical
- o Provides an example Portfolio
- Can go in here:
- o Reference papers
- o Datasheet
- Logbook
- o Minutes should just be copied from the minute taker
- o Date confusion in Liu's and Carl's Logbook
- o Provides an example Logbook

3:06pm Dr. J leaves

Jeremy

- Can logbooks have different colors in them

Dr. Li

- Yes, can be useful
- If a project continues, giving a logbook is a good reference

3:15pm Meeting adjourned

October. 25th, 2018

Meeting minutes Oct 25, 2018

By: Jeremy Perhac

Team: IOSenior

Attendee's: Dr. Frenzel, Dr. Li, Jeremy, Han, Carl, Liu

2:30pm Start

Han

- Presents the DVP

Dr. J

- Finds some spelling mistakes
- Ultrasonic tests complete?

Jeremy

- Kind of
- o Battery tests took place
- o The initial tests should cover for the most part
- o Will do a test for object placement soon

Dr. J

- Hesitant about the Current sensor?
- Draw a picture

Han

- Draws one

Dr. J

- Is this measurement a voltage?
- o Analog to Digital (A to D)?
- Explains A to D

2:45pm Battery Test Results

Jeremy

- Two battery tests
- o First lasted 32 hours
- o Second lasted 30 hours
- Bigger battery or put device to sleep mode to increase life

2:46pm Fridge Trigger design

Han

- Conductive tape could cause some small sparks

Dr. J

- FSR and FSRR

Han

- Force Sensitive Resistance

Dr. J

- FSRR is with a 10k ohm resistance
- Spark shouldn't be an issue
- Ordered yet

Han

- Wasn't in the original purchase
- There are two items there

Dr. J

- How does the FSR connect to the board?

Jeremy

- Honestly don't know, first I've seen of this item
- o Have heard about a little from Han

Dr. J

- Be careful due to the open circuit to short circuit case
- o Will need a circuit for this
- A pull up resistor could work to keep a logic high

Han

- Why can we not use a diode to connect this?
- o Draws a simple circuit

Dr. J

- Input is not a source of voltage

Han

- Battery

Dr. J

- Purpose of diode?
- o No current with the INPUT pins

3:04pm Wiki page

Carl

- Wiki page questions
- o Missing stuff
- o How to Add links?

Dr. Li

- * The first turn in is just a draft
- o Doesn't need to be 100% done
- o Just keep updating it
- Talk the mechanical person about adding a hyper link

3:07pm Li works with Carl and Liu on something while Dr. J works with Han on the circuit structure of the pins of a controller.

3:09pm Everyone focuses on Dr. J's mini lecture of pin structure

3:15pm Other items

Action items for next week:

Carl and Jeremy: Ultra Sonic sensor object placement test

Liu and Han: Current transformer

Jeremy: find a room for preliminary design review

Dr. J will not be here 11/14-11/16, that week 11/13 1:30pm or 2:30pm Meeting place to be determined for preliminary design review

Dr. Li

- Project Value Proposition due 11/2, next Thursday

Dr. J

- This project has a good value
- Helps elderly but, still gives freedom
- Leaves to get prepped for advising

Dr. Li

- Find a conference room that can hold 20 people

Jeremy

- What time frame do we have for the preliminary design review?

Dr. Li

- Any time within two weeks before Nov. 16th
- For agenda
- o More action items
- Don't need to just be technological, but can be on presentation
- o Sent out a day prior

3:30pm Meeting Adjourned